

**ABSTRACT OF THE DISCLOSURE**

A polymer electrolyte fuel cell stack is provided with a plurality of unit cells, a gas supply manifold supplying reaction gases to each of the plurality of unit cells, a gas exhaust manifold through which the reaction gases are exhausted, and a pressure loss control mechanism controlling the reaction gases passing through the gas supply manifold, respective flow passages of the plurality of unit cells and the exhaust manifold to control pressure loss of at least one of the gas supply manifold and the gas exhaust manifold corresponding to the flow rates of the reaction gases in a way to establish a predetermined ratio between the pressure loss of at least one of the gas supply manifold and the gas exhaust manifold and pressure loss in the respective flow passages of the plurality of unit cells.